

NIST 2010 Implementation

Hratch G. Semerjian
Acting Director

Visiting Committee on Advanced Technology
June 8, 2004

Implementation mechanisms

➤ Primary objectives:

- Build on existing core competencies
- Expand capacity in Strategic Focus Areas

➤ Implementation mechanisms

- DOC/NIST budget initiatives
- NIST-wide investments: “Competence” funding
- NIST-wide coordination: Strategic Working Groups
- OU-level: Operating Plans
- OA partnerships
- NIST-wide outreach

DOC / NIST Budget Initiatives: FY 2003-2004 Request v. Enacted

- Programmatic budget initiatives derived from NIST 2010 strategic objectives

| | | FY 2003 (\$M) | | FY 2004 (\$M) | |
|--------------------------------|--|----------------|----------------|----------------|----------------|
| | | <i>Request</i> | <i>Enacted</i> | <i>Request</i> | <i>Enacted</i> |
| Build core competencies | Competence for Advanced Measurements | 4.7 | 0 | | |
| | Neutron Science | 6.0 | 0 | | |
| | Wireless Technologies | 2.0 | 2.1 | | |
| | Computer Security Expert Assist Team | 1.0 | 1.0 | | |
| | Measurement Science, Standards, and Services | | | 4.5 | 0.7 |
| Expand Capacity in SFAs | Public Safety and Security | 2.0 | 3.0 | 10.3 | 0 |
| | Nano | 4.0 | 1.5 | 5.2 | 1.4 |
| | Bio / Health Care | 3.0 | 2.0 | 1.0 | 0.4 |

DOC/NIST Budget Initiatives: FY 2005 Request

➤ Build core competencies

- Measurement Science, Standards, and Services: \$16.2M
 - Building competence for advanced measurements: \$7.5M
 - Biosystems and health: \$5M
 - Time scale and dissemination: \$0.7M
 - Quantum information science / quantum computing: \$3M

DOC/NIST Budget Initiatives: FY 2005 Request

➤ Expand capacity in Strategic Focus Areas

- Advances in Manufacturing (\$15.6M)
 - Nanotechnology / nanomanufacturing / nanometrology: \$8M
 - National Nanofabrication and Nanometrology Facility: \$4M
 - Health Care Technology / Adv'd Medical Technologies: \$1.6M
 - Measurements and Standards for International Trade: \$2M
- Public Safety and Security (\$18.6M)
 - Buildings and first responders: \$4M
 - Measurement infrastructure for Homeland Security: \$7.6M
 - PATRIOT Act / Biometrics: \$1M
 - Cybersecurity: \$6M

NIST-wide Investments: Competence Program

- Internal strategic investments to build core competencies in measurement science and expand capacity in Strategic Focus Areas
 - All proposals emphasize how they will help NIST meet future national metrology needs
 - All proposals demonstrate relevance to NIST's mission; alignment with Laboratory operating plans; and commitment to scientific and technical excellence



Competence Program: FY 03-04

- Added internal resources in FY 2004
- Pursuing growth through budget appropriations. FY 05 initiative would increase the investment level by 66% to about 5% of the Laboratories' overall program

| <i>SFA</i> | <i>Project Title and Contributing OUs</i> | <i>Start</i> | <i>\$K / year</i> |
|------------------------------|--|--------------|-------------------|
| Nanometrology | Nano-scale Engineered Sensors for Ultra-low Magnetic Field Metrology (EEEL, PL, MSEL, ITL) | FY 04 | \$850 |
| | 3D Chemical Imaging at the Nanoscale (PL, MSEL, ITL) | FY 04 | \$780 |
| | Neutron Metrology for Fuel-Cell Technology (PL) | FY 04 | \$423 |
| IKM | An Integrated-Circuit Quantum Computer (EEEL) | FY 03 | \$760 |
| | Quantum Information Theory and Practice (PL, ITL) | FY 03 | \$500 |
| Homeland Security | Complex System Failure Analysis (BFRL, ITL) | FY 04 | \$800 |
| Biosystems and Health | Metrology for Tissue Engineering: Test Patterns and Cell Function Indicators (CSTL, MSEL) | FY 02 | \$962 |
| | Single Molecule Manipulation and Measurement (EEEL, CSTL, PL, ITL) | FY 02 | \$1,230 |

NIST-wide planning: Strategic Working Groups

➤ Purpose

- Identify strategic opportunities
- Facilitate internal technical coordination
- Enhance external collaboration and support

➤ Approach

- Multi-laboratory, multi-disciplinary
- Blend internal and external inputs regarding NIST roles and opportunities

Strategic Working Groups: Current Status

- Strategic Working Group for Homeland Security
 - Initial focus: Coordination and collaboration with Department of Homeland Security
 - Comprehensive inventory of NIST Homeland Security activities
 - Next steps: Conduct longer-term needs assessment
- Strategic Working Group for Biosystems and Health
 - Recently established
 - Initial focus: Strategic opportunity assessment and investment options

OU-level implementation: Annual Operating Unit plans

- NIST 2010 provides framework for annual operating unit plans
 - Alignment with Strategic Focus Areas
 - Balance of NIST-wide and OU-specific activities
- Operating Units conduct planning sessions in the summer; Director reviews operational plans early in the fiscal year

FY 2003-2004 Operational Plans

| NIST OU SFA Planning Levels: FY 2003-2004 | | | |
|--|-----------------------|-----------------------|----------------------|
| \$M (nominal) | | | |
| | | | |
| | <i>FY 2003</i> | <i>FY 2004</i> | <i>Change</i> |
| Nano | \$62.9 | \$65.0 | 3.3% |
| Bio / Health Care | \$31.1 | \$30.4 | -2.2% |
| Information / KM | \$62.6 | \$63.2 | 1.0% |
| Homeland Security | \$41.6 | \$49.1 | 17.9% |
| Total SFA | \$198.3 | \$207.7 | 4.8% |
| | | | |
| Notes: | | | |
| <i>Data represent Laboratory OU plans and estimates as of Nov. 2003</i> | | | |
| <i>Data include all laboratory revenue sources</i> | | | |
| <i>Data provided for internal planning purposes; not official NIST budget or spending data</i> | | | |

NIST-wide Outreach

- SFAs are top priorities for information and outreach
 - Web and printed materials
 - Media placements
 - Exhibits and conferences